

HENDY (JOSHUA) IRON WORKS

SOME STAMP MILLING MACHINERY

ACCESSORIES. 1911.



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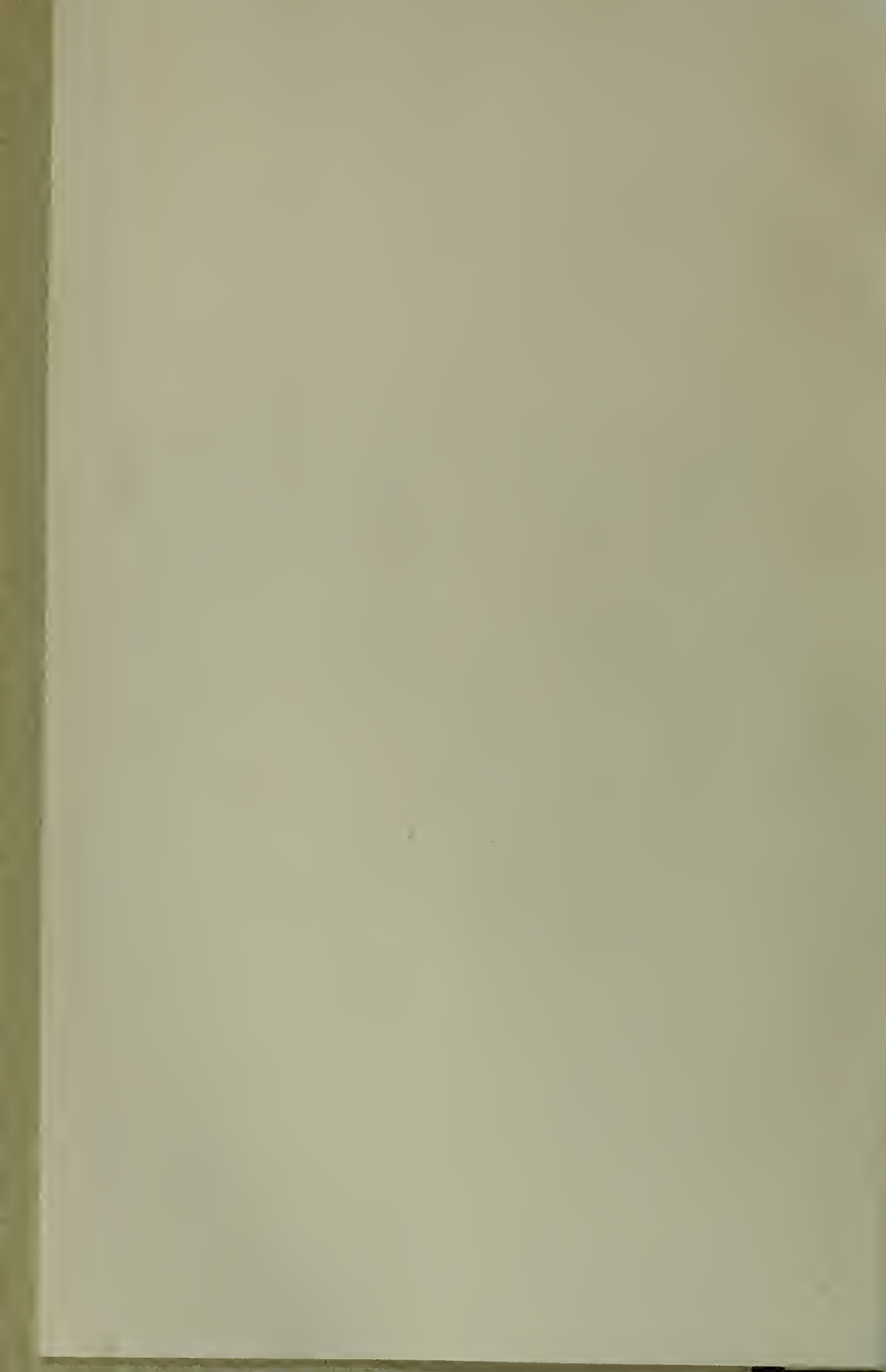


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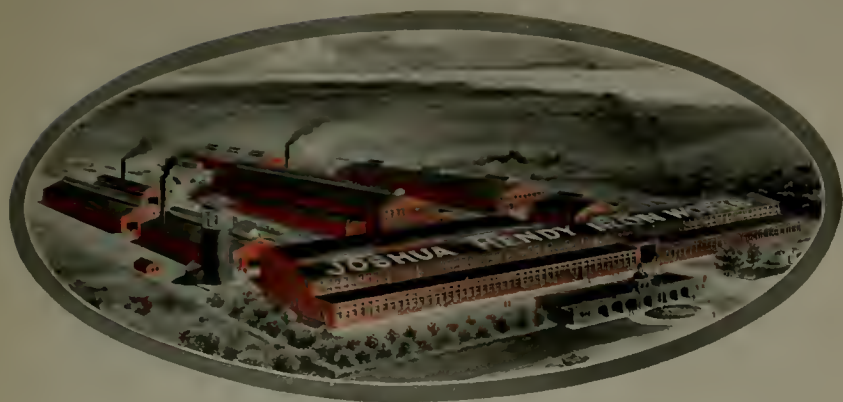


SOME
STAMP MILLING
MACHINERY
ACCESSORIES.



MANUFACTURED BY
JOSHUA HENDY IRON WORKS
SAN FRANCISCO, CAL. U.S.A

Geo. annet



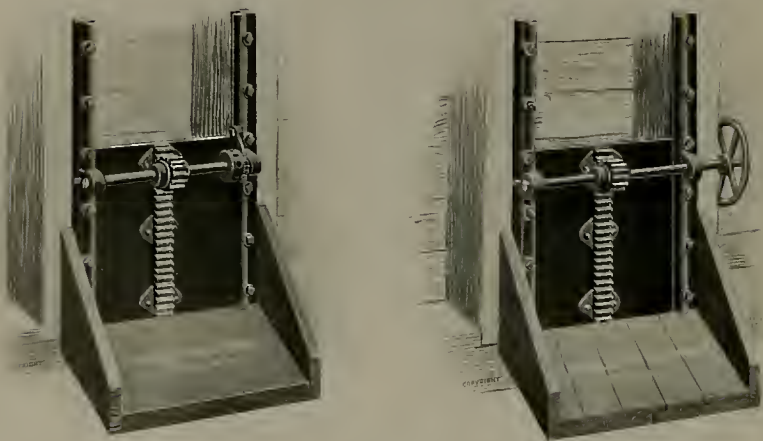
This bulletin illustrates and describes some of the more important stamp-mill accessories manufactured by this company. It is intended as a supplement to Bulletins Nos. 119, 121 and 124, in which are described Stamp Mills, Rock Crushers and Crushing Rolls and Machinery employed in fine grinding of gold and silver ores.

The tremendous advance made in Hydro-metallurgy during the past few years has led to a keener appreciation of the value of preliminary amalgamation and concentration, which in turn has led to the introduction by manufacturers of mining machinery, of a varied line of so-called improved stamp-mill accessories. In regard to mechanical innovations, we have always taken a conservative stand and have preferred to leave to others the recommending of untried machines, and have confined ourselves to manufacturing only those which time and experience have justified in removing from the field of experiment. A list of these will be found in this bulletin.

Within recent years there has been a tendency on the part of engineers to incline more and more towards fine grinding, particularly in those cases where the ore is to be ultimately subjected to cyanide treatment. The advantages and limitations of the stamp mill are well known, and while for the preliminary crushing of the ore it stands unequalled, where a particularly fine product is desired it is necessary to supplement it with other machinery. The machines employed in fine grinding are properly classed in a group by themselves and are described in our Bulletin No. 124.



Ore-Bin Gates



Standard Rack and Pinion Ore Bin Gates

A well known type as illustrated above. Made in three styles, viz.: Single rack and pinion operated by hand wheel, or by a bar, and by two racks and pinions, operated by bar or hand wheel as preferred.

Code Word	No.	Width Gate Inches	Height Gate Inches	Weight Lbs.	Description	Price List
Gabam	705	18	24	190	1 Rack and Pinion	
Gabet	706	24	30	240	1 Rack and Pinion	
Gabia	707	24	30	275	2 Racks and Pinions	

Segmental Ore Bin Gates

A popular gate, opened and closed quickly, and by many has preference over other types. Made in one size only.

- Vertical opening...24"
- Horizontal opening 24"
- Center shaft to base of opening15"
- Weight340 lbs.

Code Word—Gabkar.

When quoting on ore bin gates it is understood that iron work and lag screws are alone provided, or bolts when required.



JOSHUA HENDY IRON WORKS
SAN FRANCISCO, CAL.

Bottom Discharge Ore Bin Gates

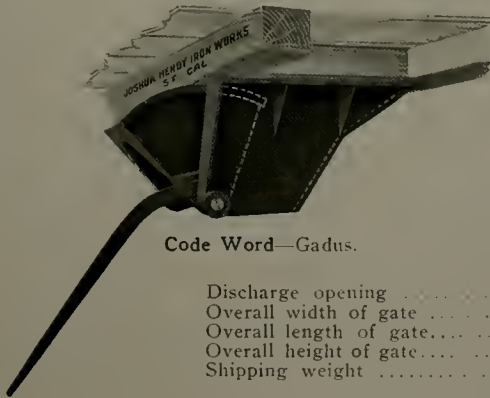


Code Word—Gacha.

A rapid opening, lever operated, ore bin gate. Has advantages over other types for many uses. Made in one size only.

Discharge opening	10½" x 10½"
Clearance required from bin.....	30"
Weight	250 lbs.

A specially designed bottom discharge quick opening gate, consisting of a heavy cast iron angle chute and cast iron segment, with wrought iron lever handle for operating. Adapted for discharging large pieces of rock without clogging.

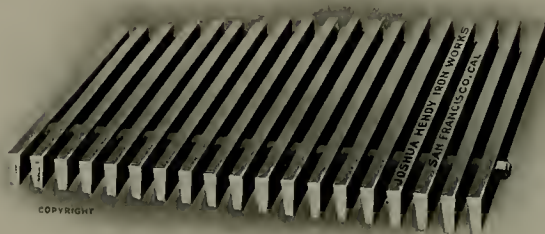


Code Word—Gadus.

Discharge opening	3' 1¾"
Overall width of gate	4' 3"
Overall length of gate.....	24" x 20"
Overall height of gate.....	2' 6½"
Shipping weight	1687 lbs.



The Ore or Rock Grizzly



Here is illustrated the end section of a taper-bar Grizzly. Parallel end bars are seldom used in making Grizzlies. Taper bars fitted with tie rods and spaced with cast iron tapered thimbles provide a gradual increasing space, thereby permitting the screened material to pass through the bars without choking.

Heavy taper bar Grizzlies are of the following cross section:

Top width, $\frac{3}{4}$ in.; depth, 3 in.; bottom width, $\frac{3}{8}$ in.

The lighter type:

Top width, $\frac{5}{8}$ in.; depth, $2\frac{1}{2}$ in.; bottom width, $\frac{3}{8}$ in.

ADDITIONAL SPECIFICATIONS OF HEAVY BAR GRIZZLYS

Code Word	Width in Inches	Length in Inches	Clear Space bet. Top of Bar in Inches	Number of Bars	Number of Cross Rods	Weight Lbs.
Enduro	$36\frac{1}{2}$	96	2	14	3	715
Enfado	$35\frac{3}{4}$	96	$1\frac{3}{4}$	15	3	765
Enfant	$36\frac{3}{4}$	96	$1\frac{1}{2}$	17	3	860
Enfen	$47\frac{1}{2}$	120	2	18	3	1125
Enform	$48\frac{1}{4}$	120	$1\frac{3}{4}$	20	3	1250
Enfui	48	120	$1\frac{1}{2}$	22	3	1375
Engra	$48\frac{3}{4}$	120	$1\frac{1}{4}$	25	3	1560
Enops	48	120	1	28	3	1745
Enoto	$47\frac{1}{2}$	144	2	18	4	1360
Enovat	$48\frac{1}{4}$	144	$1\frac{3}{4}$	20	4	1570
Enow	48	144	$1\frac{1}{2}$	22	4	1660

ADDITIONAL SPECIFICATIONS OF LIGHT BAR GRIZZLYS

Engos	$36\frac{5}{8}$	96	$\frac{1}{2}$	33	3	1242
Engst	$36\frac{3}{8}$	96	$\frac{3}{4}$	27	3	1030
Emetin	$36\frac{3}{8}$	96	1	23	3	925
Emina	$36\frac{1}{4}$	96	$1\frac{1}{4}$	20	3	795
Enchant	$36\frac{3}{4}$	96	$1\frac{1}{2}$	18	3	713
Enclos	$37\frac{3}{8}$	96	2	15	3	614
Encono	$36\frac{5}{8}$	120	$\frac{1}{2}$	33	4	1530
Endexa	$36\frac{3}{8}$	120	$\frac{3}{4}$	27	4	1280
Endict	$36\frac{3}{8}$	120	1	23	4	1115
Enlos	$36\frac{1}{4}$	120	$1\frac{1}{4}$	20	4	990
Endono	$36\frac{3}{4}$	120	$1\frac{1}{2}$	18	4	910
Endtag	$37\frac{3}{8}$	120	2	15	4	775

Chain Blocks

For the best service the following are recommended:

WESTON'S DIFFERENTIAL (Fig. 1)

Code Word	Capacity Tons	Hoist Feet	Weight Lbs.	List Price
Gatar	1 $\frac{1}{4}$	6	20	\$ 8.25
Gagner	1 $\frac{1}{2}$	7	28	9.50
Gago	1	8	51	12.75
Gaiva	1 $\frac{1}{2}$	8 $\frac{1}{2}$	85	16.50
Gajos	2	9	125	20.50
Galan	3	10	161	27.50

YALE & TOWNE DIFFERENTIAL (Fig. 2)

Galato	1 $\frac{1}{4}$	6	22	\$12.25
Galega	1 $\frac{1}{2}$	7	30	14.25
Galeus	1	8	51	19.00
Galgad	1 $\frac{1}{2}$	8 $\frac{1}{2}$	81	24.50
Galima	2	9	122	30.50
Galon	3	9 $\frac{1}{2}$	180	40.50

YALE & TOWNE DUPLEX (Fig. 3)

Galopa	1	8	57	\$30.00
Gama	1 $\frac{1}{2}$	8	76	40.00
Gambas	2	9	104	50.00
Gamins	3	10	200	75.00
Gamut	4	10	275	95.00

YALE & TOWNE TRIPLEX (Fig. 4)

Ganas	1	8	89	\$45.00
Gando	1 $\frac{1}{2}$	8	133	60.00
Ganeu	2	8	203	70.00
Ganga	3	10	206	90.00
Gansin	4	10	307	110.00
Ganten	5	12	397	140.00
Garan	6	12	417	165.00
Garba	8	12	505	200.00
Garde	10	12	622	240.00



FIG 1

FIG 2

JOSHUA HENDY IRON WORKS
SAN FRANCISCO, CAL.
U. S.

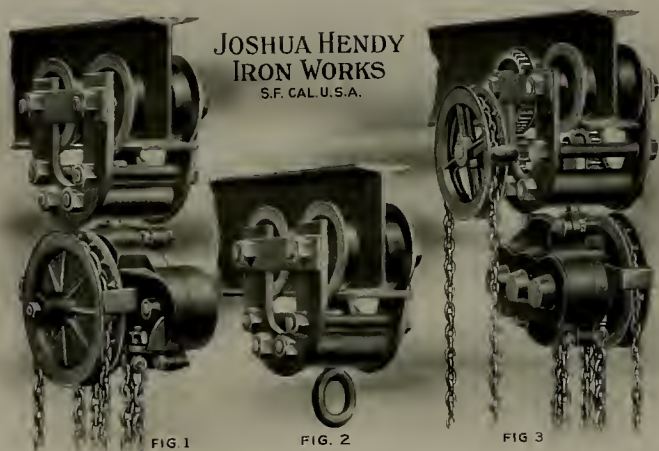


FIG 3

FIG 4



Overhead Trolleys



Code Words

Garfa

Gargils

Garibo

“I” Beam Type

These illustrations show our several types of four-wheel, “I” beam trolleys. Fig. 2 shows the trolley only; Fig. 1, the trolley with triplex chain hoist attached, and Fig. 3, the trolley with special chain hoist together with mechanical means for operating the trolley from the floor below. These devices have become essential in stamp milling, concentrating, sampling and rock crushing plants, and, in fact, in reduction work of any character where it is necessary at times to handle heavy repair parts, make replacements, etc. Our trolleys are exceptionally strong built, the side hangers being of forged steel, connected together by means of through bolts with gas pipe spreaders. Wheels are the only part made of cast iron, the axles being made of steel. We furnish this type of trolley in any size from 3-ton capacity to 15-ton capacity, and can if necessary design special apparatus of this character to meet unusual conditions.

Overhead Crawls

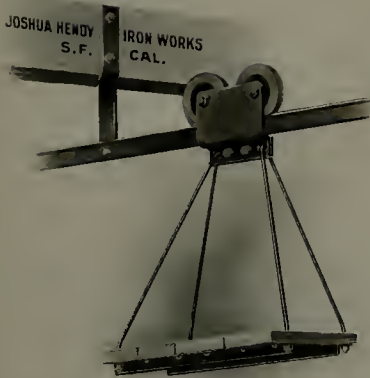


This shows our standard four-wheel overhead crawl, designed for running on flat track for use in stamp mills, crushing plants, etc. These crawls are strongly and substantially made, the wheels and body being made of cast iron, axles of steel, and the hook of best forged Norway iron. Schedule below shows sizes ordinarily carried in stock together with specifications giving general dimensions, etc.

OVERHEAD CRAWLS AND TRACK

Code Word	Capacity Tons	Size of Track Iron Required Inches	Wheels Diameter Inches	Gauge of Track Inches	Axles Round Inches	Eye Bolt Size Inches	Weight Lbs.
Garos	1	1 $\frac{1}{4}$ x $\frac{1}{4}$	4	5	1	1 $\frac{1}{8}$ x 15	60
Gasab	2	1 $\frac{1}{4}$ x $\frac{1}{4}$	6	7	1 $\frac{1}{2}$	1 $\frac{1}{4}$ x 15	90
Gasify	3	1 $\frac{1}{2}$ x $\frac{1}{4}$	6	7	1 $\frac{1}{2}$	1 $\frac{1}{2}$ x 17	120
Gaspa	4	2 x $\frac{1}{2}$	8	8	1 $\frac{1}{2}$	1 $\frac{1}{2}$ x 21	150
Gasto	5	2 x $\frac{1}{2}$	8	8	1 $\frac{1}{2}$	1 $\frac{3}{4}$ x 26	160

Track Iron and Nails, extra.

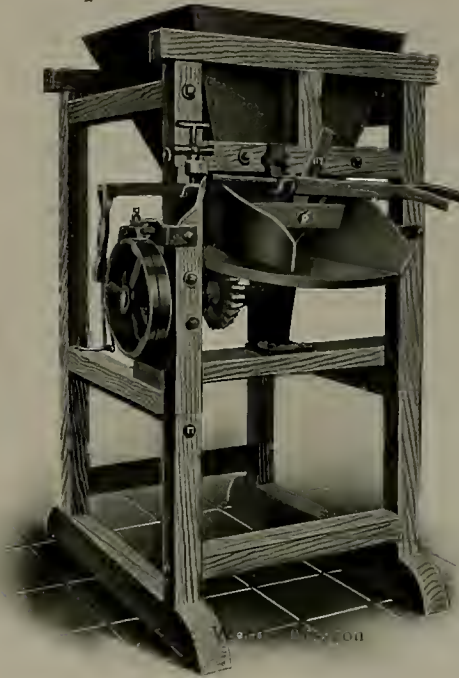


Single Rail or Amalgam Trolley

A single rail trolley with cage for use in stamp batteries. This is a very convenient device, especially in mills having more than 10 stamps. The trolley with cage moves on a piece of $\frac{1}{2}$ x 3 in. iron, and the cage is built strong and heavy enough to carry shoes and dies for battery replacements or a sand bucket when cleaning up. This device saves a great deal of hand labor and is a convenience much appreciated wherever it has been placed in use. Specifications, general dimensions and sizes are as follows:

Code Word	Tray in Inches	From Top of Rail to Top of Timber	From Top of Rail to Bottom of Pan to Suit Condition	Height of Cage Inches	Weight Lbs.
Gaud	18 Square	9 $\frac{1}{4}$ "		30	115
EXTRA					
Gatam	Hangers— $\frac{1}{2}$ " x 2" x 21 $\frac{1}{2}$ "		long		10 lbs. each
Gaula	Rail— $\frac{1}{2}$ " x 3"				5 lbs. per foot

Improved "Hendy Challenge" Ore Feeders



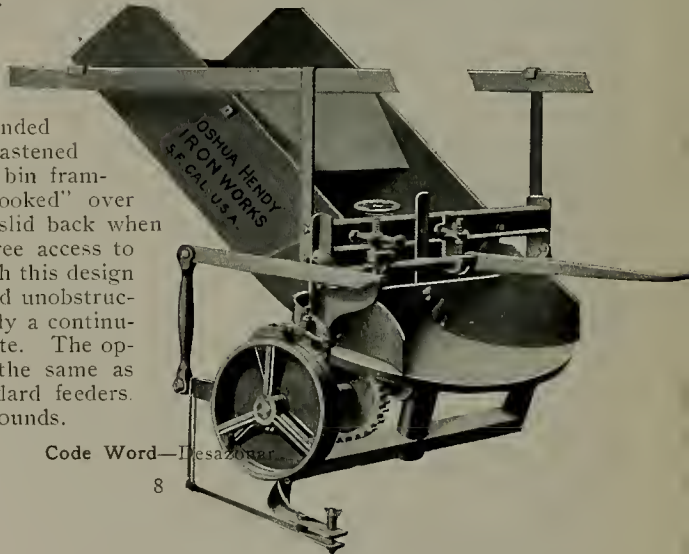
We deem a description of the principles involved in and the merits of their operation to be entirely unnecessary, for the reason that we have built and sold at least 10,000 of the "Challenge" Ore Feeders, and they are to be found wherever mining is engaged in throughout the world, from Alaska to South Africa, and their use is acknowledged to be an absolute necessity in all quartz milling enterprises. From the date of their introduction by us we have given special and careful attention to details of construction.

The principal dimensions of our standard feeders are: From floor to top of feeder hopper, 81 inches; from floor to top edge of table, 47 inches; from front face of frame to extreme edge of table, 10 inches. Width of frame, 38 inches; depth, 44 inches. They can be made rod or stem feed as may be desired.

Shipping weight, 800 pounds.

Improved "Hendy Challenge" Suspended Ore Feeder

As suggested by its name, instead of being supported from the battery floor it is suspended on wrought iron bars, fastened to the battery and ore bin framing; the feeder is "hooked" over these bars and can be slid back when it is desired to have free access to the back of battery; with this design the floor is left clear and unobstructed. The hopper is really a continuation of the ore bin chute. The operating mechanism is the same as that used for the standard feeders. Shipping weight, 800 pounds.



Code Word—Desazouari

"Hutchinson Challenge" Feeder

(PATENTED)

A new automatic ore feeder, distinctly superior to all others, being greatly simplified over the older types of "Challenge" ore feeders, in that it does away with more than one-half of the parts used in any other feeder of this type.

The saving in the cost of renewals by using this feeder will appeal to the millman as a distinct advantage and improvement.

The entire feeding mechanism for turning the feeder disc consists of a bumper lever, the short arm of which is connected to one end of a length of special English steel cable, which passes entirely around a single groove sheave, cast integral with the feeder disc. The other end of the rope passes through a spring, which is held in place by a bracket attached to the frame. The blow of the feeder tappet causes the rope to tighten on the feeder disc and thus carry it around for the regular stroke; the spring at the other end of the rope draws it back when the stamp is lifted.

A brake to prevent the feeder disc from receding is not required, as the weight of the ore in the hopper, resting on the disc, acts as a brake.

The dimensions are practically the same as those of the standard "Challenge" feeder.

The feeder is also furnished in the wood frame standing type.

Weight of either style, 825 pounds.

SUSPENDED FEEDER

Code Word—Gaunt.

STANDING FEEDER

Code Word—Gavot.



Belt Tighteners

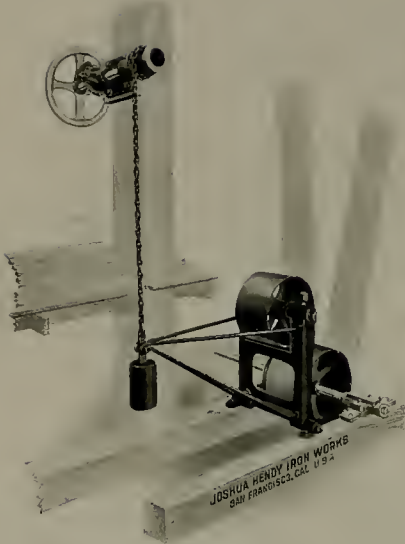


Fig. 1

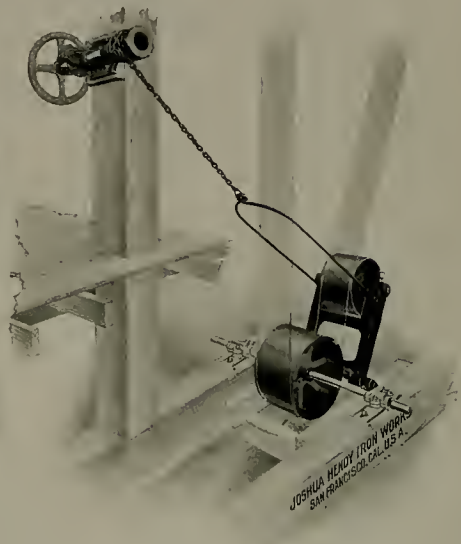


Fig. 2

The illustrations show two types of battery belt tighteners: Fig. 1 shows the triangular all-iron frame type adapted for use where the drive side of the belt is nearest the battery; and Fig. 2, the all-iron yoke type adapted for use where the drive side of the belt is nearest the ore bin.

These tighteners are exceptionally well built, on correct mechanical principles, and are each equipped with the necessary chain, ratchet tightening devices with hand wheel, and pulley to suit size of belt called for.

ANGLE TYPE SWINGING BELT TIGHTENERS. Fig. 1. Iron Work Only

Code word	Gawk	Gabet	Gebak	Gebeint	Gebnis
Diameter Pulley, inches.....	16	16	16	16	16
Face Pulley, inches.....	8	10	12	14	16
Weight, pounds	460	475	500	510	525
Price					

YOKE TYPE BELT TIGHTENERS. Fig. 2. Iron Work Only

Code word	Gubur	Geby	Haben	Habil	Habita
Diameter Pulley, inches.....	16	16	16	16	16
Face Pulley, inches.....	8	10	12	14	16
Weight, pounds	415	425	450	460	475
Price					

Apron Tables For Amalgam Plates



The illustration above shows one of our standard designs for an apron table. While these are not ordinarily furnished by manufacturers, it being cheaper in most cases to have them made up on the ground, we give this illustration for the benefit of our clients as a suggestion of the most approved method for making these tables.

As will be seen, the table is fitted with apron castors, each castor having its own piece of track iron, made of $\frac{7}{8}$ in. half round steel, 3 ft. long, turned up on the end. By this means the table may be pulled forward away from the battery whenever it is desired to make repairs, thus avoiding the necessity of having the millman walk over the top of the tables and run the risk of injuring the amalgamating plates.

When the table is ready to receive the copper plate, in order to prevent amalgam or mercury leaks and consequent loss, a good quality of blanket, from 4 to 6 inches wider than the width of the table should be first laid on the table top, with the edges turned up. The silver-plated copper plate should be placed on top of the blanket and then a piece of quarter-round beading should be tacked to the sides of the table. The blanket forms an effective means of making a mercury tight joint and will, we believe, give excellent satisfaction wherever it is used.

Below will be found specifications of iron work for castors, track iron, and nails for apron tables.

Code Word	For Timber Legs Inches	Diameter of Wheels Inches	Size Track Half Round Inches	Length of Track Inches	Weight Each Lbs.
Habla	2 $\frac{3}{4}$ x 2 $\frac{3}{4}$	4	$\frac{7}{8}$	36	16



Automatic Wet Tailings Sampler



Code Word—Haben

SPECIFICATIONS

Measurements

Base	18x32"	Length of trough.....	15"
Height over all.....	14"	Diameter of drain pipes.....	2"
Weight, boxed for shipment.....		250 Lbs.	

The above illustration shows our automatic wet tailings sampler and its adaptability for use in sampling wet tailings after plate amalgamation, and also in sampling from the discharge launder of the mill after the entire process of extraction is finished.

Systematic mechanical sampling is absolutely essential in modern milling practice and is far superior to hand sampling in every way.



Automatic Tailings Sampler as Used in Sampling Tailings After Plate Amalgamation

In the preceding and also in the following illustration may be seen the sampling trough, which, when in operation, waves or rocks back and forth automatically, thereby cutting the discharge from the lip of the amalgam trap evenly through its entire width, thus depositing an accurate sample into the pail or other vessel set below the discharge pipe.



The water for operating the sampler may be seen flowing from a faucet into a two-compartment tipping bucket, which, as rapidly as one compartment fills with water, tips over, thereby automatically discharging itself while the other compartment is filling.



Automatic Tailings Sampler as Used in Sampling Tailings from the Battery After Passing Through an Amalgam Trap

The amount of water fed into the tipping bucket of the sampler may be regulated by means of the faucet so that a sample may be taken automatically, as often as in the judgment of the operator it appears to be necessary. The range is often varied from one per minute to as few as one every two hours.

The Amalgam Trap



SPECIFICATIONS

Width	21 "
Length	21 "
Height (base to top)	18 ³ / ₈ "
Width of top opening	14 "
Drain pipe	3/4"
Top of trap to bottom of discharge apron, inches	3 1/2"
Weight	150 Lbs.

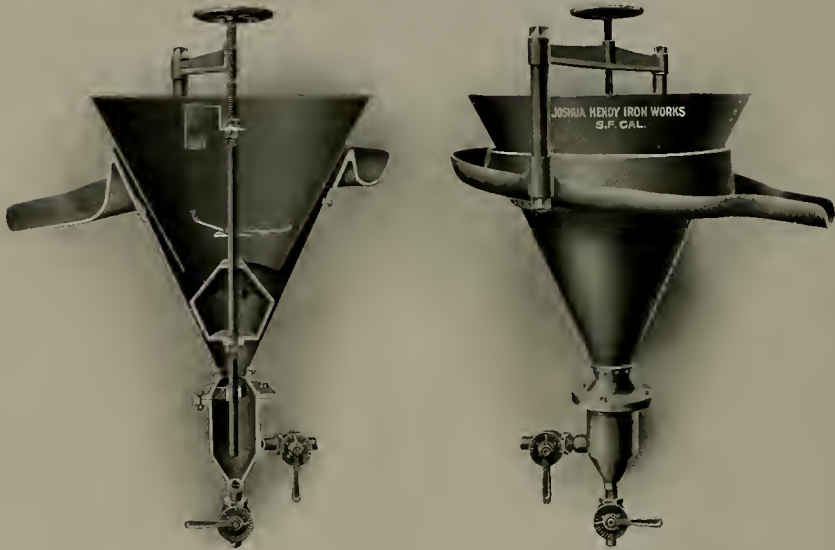
Code Word—Hacha

An improved form of an amalgam trap, made of cast iron, with guides for the wooden baffle plate, as appears in this illustration. The function of this device, when placed at the end of battery sluice plates or the launders, is to catch any amalgam or quicksilver which may have become detached from same, and would pass off in tailings unless this or a similar device were used. The overflow is carried off by an opening to the launder or through a tailings sampler.

The cock provided at the base is for draining off the quicksilver or the amalgam caught in the trap.



Hydraulic Cone Classifiers



Here is illustrated our standard type of hydraulic cone classifier.

The classifiers are vital necessities in every mill where sufficient water is available for their operation and also where concentration is part of the ore dressing process. Classification in one form or the other as a step prior to concentration is now universally practiced in all modern mills, and as a result has made a substantial increase in the percentage of extraction.

We manufacture these classifiers in five sizes, as follows:

Code Word	Diameter Inches	Screen Mesh	Net Weight Lbs.	Shipping Wt. Boxed, Lbs. Approx.
Hachel	18	15 to 25	225	340
Hachis	24	25 to 35	300	450
Hacht	36	35 to 50	578	864
Hacina	48	50 to 70	912	1535
Hackly	54	70 and finer	1050	1625

Prices and dimensions provided on application.

Vezin Automatic Samplers

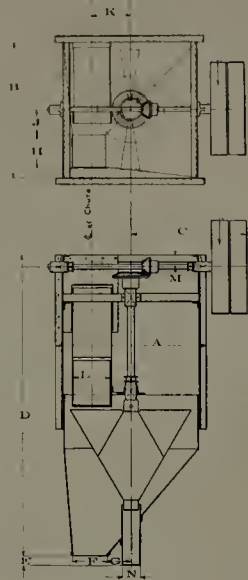


Fig. 1 shows our standard Vezin type automatic dry sampler, and Fig. 2 shows an outline drawing of same with dimensions scheduled for the convenience of engineers and mill builders. This sampler is probably the best known of any of the many devices for the purpose that have been placed upon the market within the last few years. As is shown in the illustration, our samplers are of the enclosed type, in order to prevent dust and small particles of ore from getting out when the sample is cut. The sampler is strongly constructed of iron and steel, and with proper attention should require a minimum of repairs. We furnish this sampler in three sizes as scheduled below. Prices named include iron work only as shown in the illustration.

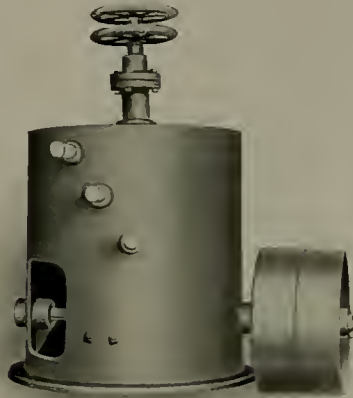
VEZIN AUTOMATIC SAMPLER

Made to cut 1/10 cut. Tight and loose pulleys, 24" x 4 1/2"; 40 R. P. M.

Code Word	No.	For Material Up To Inches	Weight Packed for Shipment Pounds	Price	Approximate General Dimensions—Inches												
					A	B	C	D	E	F	G	H	J	K	L	M	N
Hadar	1	1	675	.....	39	35	30	78	2 1/2	8 1/2	6 1/2	8 1/2	6 1/2	10	10	3	3
Hadrus	2	2	1025	.....	46	42	35	90	2	10	8	10	8	12	12	3 1/2	6
Hafen	3	4	1100	.....	53	48	39	102	2	12	10	12	10	14	14	4	8



Clean-up Pans



JOSHUA HENDY IRON WORKS
S. F. CAL.

The above illustration shows our specially designed 24 in. diameter amalgam clean-up pan.

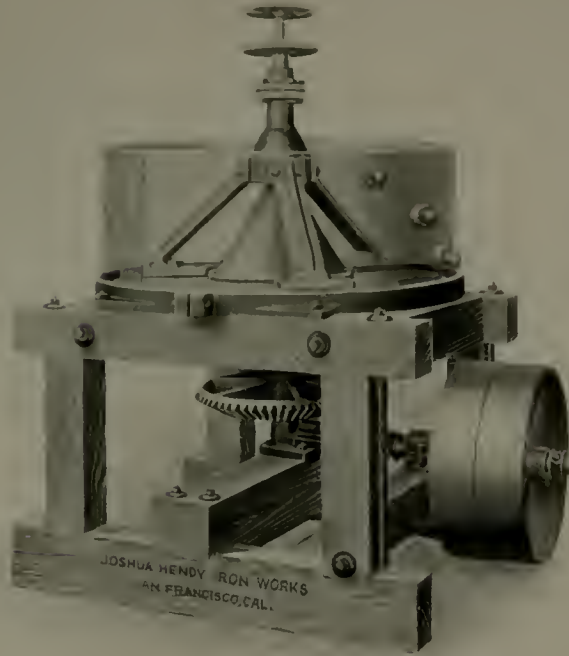
This pan is suitable for mills up to 10 stamps. It is made of cast iron and requires no special frame work for setting. Draw-off plugs have been conveniently arranged for flushing out dirt, etc., when cleaning up the amalgam. The pan is fitted with removable hard iron die and removable hard iron shoes. Gearing is inside the pan cylinder under the bottom and is fully protected against sand and grit.

WEIGHT AND SIZE OF HENDY CLEAN-UP PAN

Code Word	Diameter of Pan Inches	T. & L. Driving Pulleys Inches	Rev. per Minute	Horse-Power Required	Total Shipping Weight Pounds	Weight of Heaviest Piece Pounds
Hagan	24	16 x 4	30	3/4	775	385
SECTIONAL						
Hagel	24	16 x 4	30	3/4	950	275



Clean-up Pans



The above illustration shows our standard amalgam clean-up pan in sizes 36 in. diameter and larger. These pans are made with cast iron bottom and plate steel side, the side being fastened to the bottom by the usual rust joint compound.

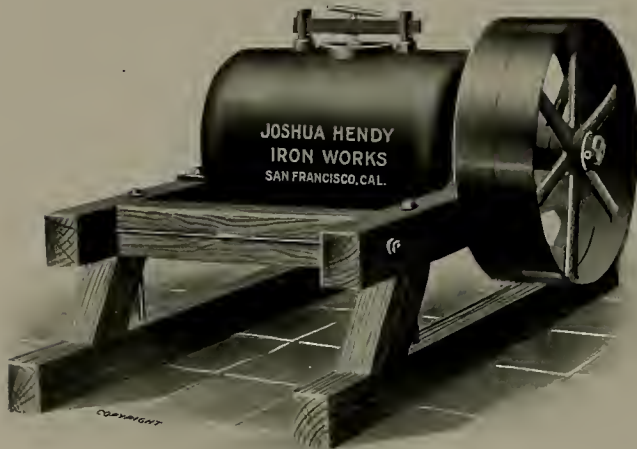
Pans are fitted with removable hard iron die and removable hard iron shoes, and can be furnished with or without wood frame, as desired.

WEIGHTS AND SIZES OF HENDY CLEAN-UP PANS

Code Word	Diameter of Pan Inches	T. & L. Driving Pulleys Inches	Rev. per Minute	Horse-Power Required	Total Shipping Weight Pounds	Weight of Heaviest Piece Pounds
Hagias	36	20 x 5	25	1	1450	366
Hagno	48	24 x 5	20	1½	2150	650
SECTIONAL						
Hahn	36	20 x 5	25	1	1500	200
Halem	48	24 x 5	20	1½	2200	250
WOOD FRAMES—EXTRA						
Hakot	36				275	45
Halat	48				350	50
FRAME BOLTS—EXTRA						
Halb	36				40	
Halcon	48				50	



Clean-up Barrel



These barrels are used when a clean-up of battery is to be made after a mill run, after which, much valuable amalgam is found in the mortars mixed with quartz, iron and other substances. This material is collected and placed in the barrel in which additional quicksilver is added. Inside of barrel is placed cast iron balls, cobble stones, or any heavy unyielding substance. The whole mass is thrown in agitation by the barrel revolving, thus grinding the material and allowing the quicksilver to mingle with the amalgam and separate same from the worthless material. We make our clean-up barrels with the cylinder and ends, also the trunions, cast in one piece; this has the advantage of being free from joints and preventing any leakage of quicksilver. The charging opening is shown by cut on top of barrel and is secured by cross bar and T bolt; opposite this opening a hole is tapped to be used for the amalgam discharge.

The barrel is furnished complete, with two bearings, cast iron balls, tight and loose pulleys, but without woodwork or bolts for same.

Our standard sizes and weights are given below.

CLEAN-UP BARRELS

Code Word	No.	Horse-Power Required*	Diameter Inches	Length Inches	T. and L. Pulleys		Weight Pounds	Rev. per Min.
					Diam. In.	Face In.		
Halden	1	1	18	24	30	6½	1250	25
Halem	2	1¼	24	36	36	6½	2175	20
Halent	3	1½	24	42	36	6½	2275	20
Halea	4	2	24	48	36	6½	2450	20

Batea



Code Word—Halfa

This illustrates the "Batea," or what might be called a large miner's pan, mechanically operated. It consists of a round cast iron pan, 48 inches in diameter and 4 inches deep, with two lugs equidistant from the center, cast on same for attaching suspension rods; opposite these at the front end is a discharge spout; under this spout the pan is supported by a roller.

The pan is made concave on bottom and a plug is inserted at the lowest point, which can be removed when cleaning up. At the suspended end the pan is driven by a horizontal shaft, to which is attached the driving pulley, 16 inches diameter, for 4-inch belt; mitre gears connect to a vertical shaft on the upper end of which is a crank which gives a gyratory motion to the pan, which has the effect of collecting the quicksilver and amalgam in the bottom of the pan and allowing the lighter materials to pass off on top and through the spout.

The driving pulley should make about 100 revolutions per minute.

One horse-power is sufficient for driving same.

Weight of iron work, 1,250 pounds.



Spiral Sand and Tailings Pumps

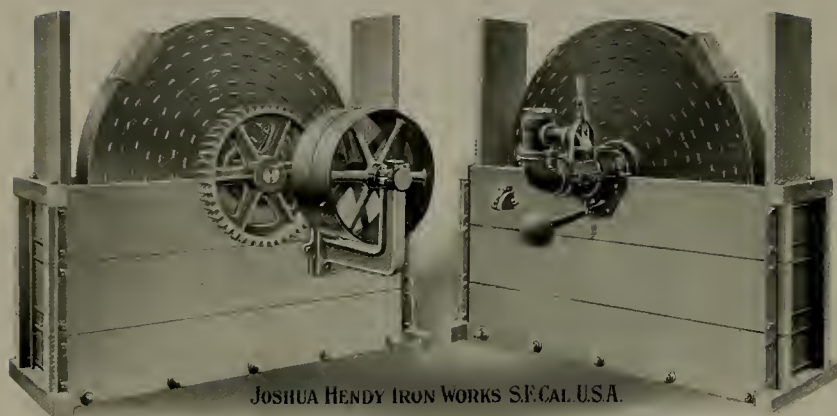


Illustration above shows two views of our spiral sand pumps, which have been found to be the simplest and most durable pumps for elevating battery sands, pulps, slimes, tailings, or, in fact, any gritty or sandy liquid. The speed of the pump runner being only about 20 revolutions per minute, the power required is very slight, not exceeding in most cases from $1\frac{1}{2}$ to 2 horse-power. The maximum lift for the 54-inch diameter pump is 22 feet, so that if greater lifts are required it is necessary to use two or more pumps placed one above the other. All of the standard sizes are given below for the convenience of engineers and mill operators. The countershaft projects beyond the pump box $23\frac{1}{2}$ inches for pumps Nos. 1, 2, 4 and 5, and 25 $\frac{1}{2}$ inches for all of the others. Not less than 20 inches should be allowed for the distance that the discharge pipe projects beyond the pump box on the side opposite the countershaft. Overall dimensions given in the schedule are of the pump box only. Pumps are furnished complete as shown in illustration, including pump box.

Code Word	Size No.	Wheel Inches		Maximum Capacity per Hour Gallons	Maximum Lift in Feet	Pulleys Inches		Revs. per Minute	Over-All Dimensions Pump Box			Weight Lbs.
		Diam.	Width			Diam.	Face		Length	Width	Height	
Halica	1	44	6	3000	12	18	3	85	5' 0"	16"	3' 4"	1100
Halin	2	48	6	3200	16	18	3	85	5' 0"	16"	2' 6"	1200
Halos	3	54	6	3500	22	18	3	95	5' 9"	16"	2' 10"	1400
Halmi	4	44	8	4000	12	18	3	85	5' 0"	18"	2' 4"	1200
Halset	5	48	8	4200	16	18	3	85	5' 0"	18"	2' 6"	1300
Halta	6	54	8	4500	22	18	3	95	5' 9"	18"	2' 10"	1500
Halus	7	44	10	5000	12	18	3	100	5' 0"	20"	2' 4"	1400
Hamac	8	48	10	5200	16	18	3	100	5' 0"	20"	2' 6"	1500
Hamet	9	54	10	5500	22	22	3	95	5' 9"	20"	2' 10"	1670

Gold Bullion Retorts

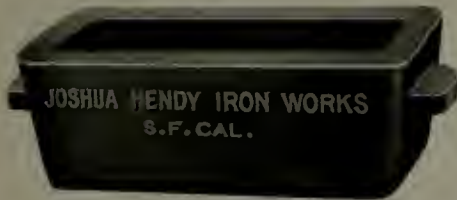
(Vertical Type.)

These retorts are made as illustrated here, being of cast iron, with feet, cover and yoke, and are supplied with condenser pipe, and are the most simple form of retort made. Supplied in three sizes.

Code Word	No.	Inside Dia. Inches	Height Inches	Cap. in Pints	Cap. in Lbs. Quick-silver	Wght. Lbs.
Hams	1	4 3/4	6	2	25	40
Hampa	2	5 3/4	7 1/4	4	50	50
Hamus	3	8	9 1/2	10	125	80



Bullion Moulds



Cast iron bullion moulds made of close grained hard iron, very smooth, but not machined, and are provided with ample draft to prevent ingot from adhering. Made in ten sizes.

Bullion Moulds

Code Word	No.	Inside Dimensions Inches	Capacity Gold, Oz.	Capacity Silver, Oz.	Price Each
Hanem	1	2 7/8 x 1 3/8 x 1 1/8	28	15	
Hanig	2	3 x 1 3/4 x 1 1/4	48	20	
Hanon	3	4 1/8 x 1 3/4 x 1 3/4	96	40	
Hantol	4	4 3/4 x 2 3/8 x 1 7/8	150	80	
Hapalus	5	5 x 2 3/4 x 2	200	107	
Hardes	6	5 3/4 x 3 1/4 x 2 1/4	300	160	
Hardi	7	7 1/4 x 3 x 2 7/8	500	275	
Hardrop	8	9 3/4 x 4 3/8 x 4	1000	575	
Harkis	9	11 1/4 x 5 1/4 x 5	1850	1000	
Hartig	10	18 x 6 x 5 3/4	3040	1600	

Vertical Retorts and Melting Furnace



Code Word—Harton

Capacity, 25 pints. Condenser fitted with amalgam trays. Unless specified we do not supply ordinary or fire brick, fire clay or crucible. All cast and wrought iron is provided as per illustration. Erection plans are provided with order.

SPECIFICATIONS

Retort				Condenser		Stack	Melting Furnace Inches	Iron Work Total Wght. Lbs.
Inside Diam. Inches	Height Inches	Capacity		Diam. Inches	Length Inches			
		Pints	Quick-silver Lbs.					
16½	17	25	300	3	40	10"x20'	17x17	1835

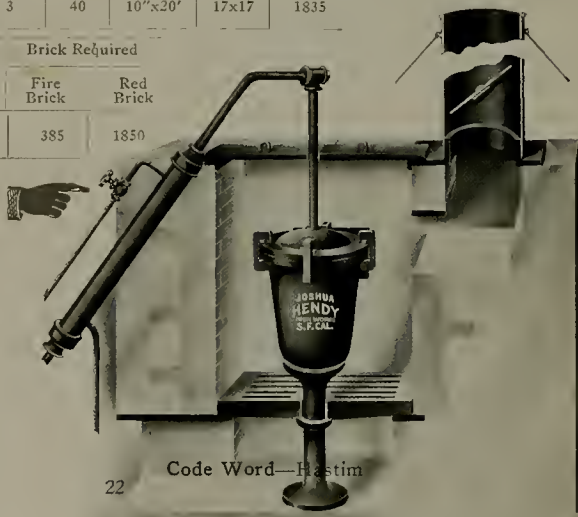
Floor Space		Floor Space for Condenser Inches	Height of Setting Inches	Brick Required	
Width Inches	Length Inches			Fire Brick	Red Brick
52	96	48	48	385	1850

Vertical Retort for Brick Setting

Without Melting Furnace

SPECIFICATIONS

- Floor space, width.....52"
- Length60½"
- Floor space for condenser.48"
- Height of setting.....48"
- Fire brick required.....260
- Red brick required.....1200
- Iron work, weight, pounds.1360
- Retort, condenser and stack dimensions, the same as above.



Code Word—Hastim

Horizontal Bullion Retort and Melting Furnace



A front view of retort setting, showing the melting furnace in section, and a side sectional view of retort setting; this is the usual method of setting our horizontal retorts with a melting furnace placed on one side of setting. The fire front is fitted with retort, fire and ash pit doors; opposite the retort door a crane is swung for convenience in handling the retort cover and amalgam trays. The retorts, except the larger sizes, are cast with lugs on the sides, which support retorts by resting upon the side walls of furnace, the larger sizes have separate bearers. The condenser is made of gas pipe from 4 to 6 inches diameter, through which the condenser pipe proper runs to the condensing tank. The fittings, furnished with a standard retort, consist of fire front complete, with anchor bolts, grate bar bearers and grates, retort with cover, clamp and trays; also cast iron sleeve for protecting condenser pipe, condenser pipe and condenser, buckstays and tie rods, damper, cast iron stack plate and stack, and if melting furnace is desired, it will require, additional to the above, grate bar bearers and grate, melting furnace top and covers, ash pit door, anchor bolts and damper.

HORIZONTAL CYLINDRICAL RETORTS AND CONDENSERS SPECIFICATIONS

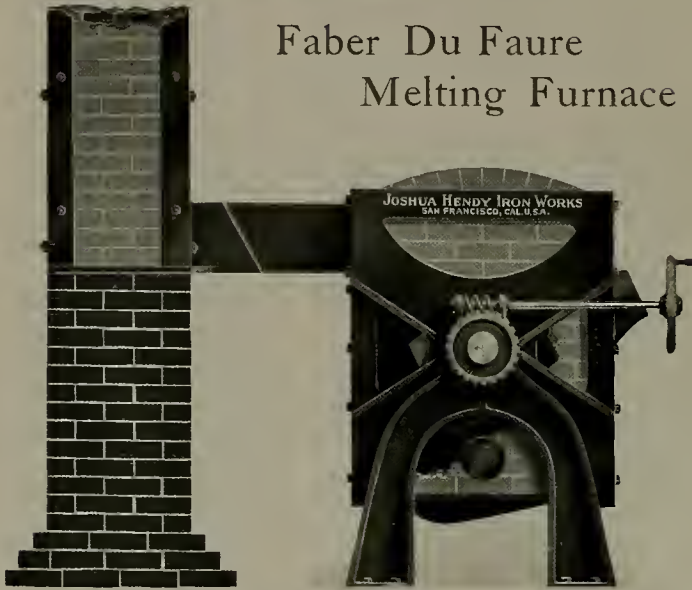
Code Word	No.	Cap. Pts.	Retort		Condenser		Stack		Weight Pounds
			Dia. Inches	Length Inches	Dia. Inches	Length Inches	Dia. Inches	Length Feet	
Hataca	1	31	10	30	5	48	10	24	2115
Haten	2	39	10	36	5	48	10	24	2225
Floor Space		Floor Space for Condenser Inches	Height of Setting Inches	Height to Bottom of Stack Inches	Brick Required				
Width Inches	Length Inches				Fire Brick	Red Brick			
42	55	60	77	121	260	1900			
42	61	66	77	121	300	2000			

MELTING FURNACE, 17" x 17", FOR CYLINDRICAL RETORTS SPECIFICATIONS

Code Word	Weight Pounds	Floor Space		Brick Required	
		Width, Inches	Length, Inches	Fire Brick	Red Brick
Haum	475	48	42	150	800



Faber Du Faure Melting Furnace



Code Word—Haupt

The Faber Du Faure furnace, as illustrated above, is used principally in cyanide plants for melting zinc precipitates, but is also adapted for distilling dross in silver, lead and zinc smelting plants. The particular advantage of this type of furnace is that it may be tilted by means of a worm, worm wheel, and hand wheel, enabling the operator to pour bullion from the crucible without removing the crucible from the furnace.

The furnace consists of a cast iron frame mounted at each end on trunnions, which rest on heavy cast iron stands. Furnace is lined inside with fire brick and is fitted with the usual grate bars when designed for use with charcoal or coke as fuel. It may also be adapted for oil, distillate or gasoline, as desired.

The furnace is fitted with a cast iron outlet, which should be brick or fire clay lined, and connected to the smokestack, as shown, for the discharge of the fuel gases.

A pot-shaped black-lead crucible is used in the furnace, which may be replaced as often as necessary.

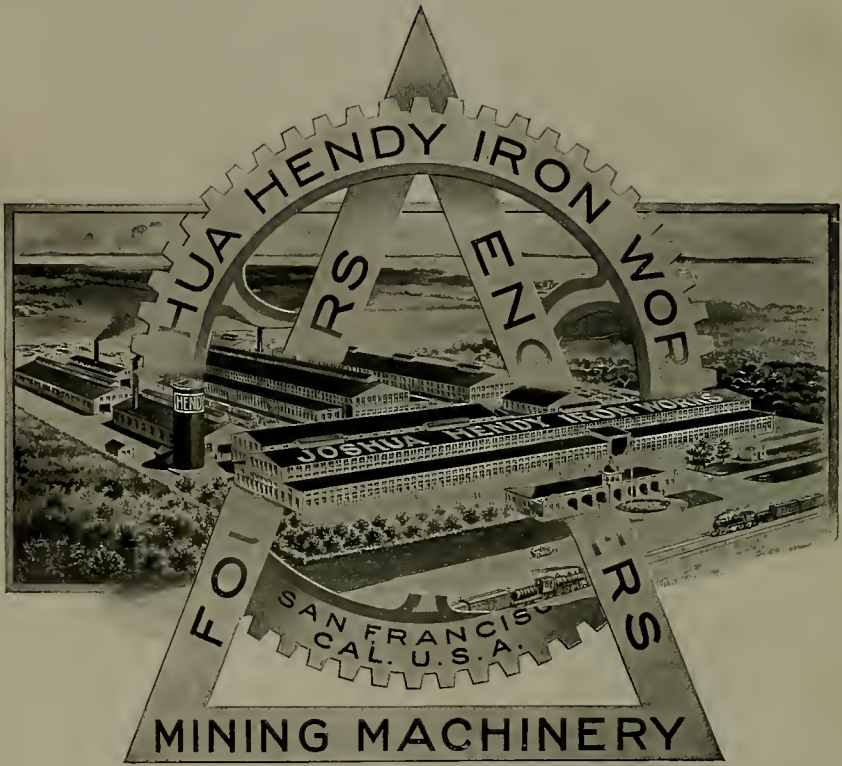
SPECIFICATION OF FURNACE AS FOLLOWS

Fire brick required for furnace.....	320
" " " " stack	190
Common brick required for stack stand.....	330

OVER-ALL DIMENSIONS

Height	4' 8"	Height of stack stand.....	7' 6"
Width	5' 6"	Stack	8" x 12"
Depth	6' 10"	The crucible scales, outside.....	16" x 31"

14
10



DEMCO
PAMPHLET BINDER
Photomount

